SENSITIVE VERTEBRATE SPECIES

Peregrine Falcon (*Falco peregrinus anatum*)

The peregrine falcon is listed as Endangered nationally and is managed in this Region under the Rocky Mountain/Southwest Peregrine Recovery Plan (USFWS 1984). As of 1990, there were 326 known pairs in the southwest region. No critical habitat has been designated for the peregrine falcon on the Fishlake National Forest.

There is 1 known active nest site on the Fishlake National Forest. This site is located on the Beaver Ranger District. Although no formal Forest-wide surveys have been initiated, site-specific surveys are conducted at the project level. Numerous other sightings have occurred throughout the forest, and suitable habitat is abundant; however, no other nest sites have been located on the Forest.

Peregrine falcons usually forage along marshes, streams, and lakes within a 10-mile radius around the nest (Spahr et al. 1991). Due to the number of sightings across the forest, additional active eyries are likely.

A recovery plan for the Rocky Mountain/Southwest population of the American peregrine falcon was approved December 1984. Suitable habitat for peregrine falcons may be divided into three parts: 1) cliff or substrata upon which eggs are laid and young are reared (nest sites), 2) surrounding territory where food is obtained (hunting sites), and 3) migration and wintering areas. Most peregrine eyries in Utah are situated on high ledges on mountain cliff faces and river gorges. There are records of peregrines nesting on low dikes in Utah marshes but these are exceptions due to the abundant prey and lack of human disturbance (Porter and White 1973). Nests are usually located on open ledges or potholes with a southern exposure. Cliffs are generally composed on one of the following rock types: Sandstone, limestone, quartzite, and volcanic rock. The height of cliffs ranges from 40-400 feet and average 178 feet (Porter and White 1973). Peregrines nest from the lowest elevations in the region to above 9000 feet. In the Rocky Mountain Region, the majority of known pairs are near ponderosa pine forests or pinyon-juniper woodlands.

Prey is the major factor in nest site selection. Prey species include primarily small to medium-sized terrestrial birds, shorebirds, and waterfowl, which are normally found within ten miles of the eyrie (known extreme is 17 miles). Nest sites are often adjacent to water courses and impoundments due to prey abundance in these areas (USFWS 1984).

Marshes, croplands, meadows, river bottoms, and lakes are important components of peregrine hunting sites. The wet areas provide food for the peregrines year-round but are especially important during the nesting season.

Peregrines generally breed at two years of age. Territories are established in March. Three to four eggs are laid mid-April in a scrape on a cliff ledge. Young are hatched in mid-May and fledge after six weeks.

Porter and White (1973) believed peregrines winter in marshes adjacent to the Utah and Great Salt Lakes.

Several factors have led to past population declines in the peregrine falcon: 1) effect of DDT, its metabolites and other chlorinated hydrocarbons on peregrine reproduction, 2) drying up of marshes

which support the peregrines' prey base, 3) killing of individuals by firearms, 4) death due to botulism, 5) predation of eggs or young, 6) destruction of nesting cliffs for mining and construction and general human encroachment (Porter and White 1973).

Peregrines are most susceptible to disturbance during the courtship and nest establishment period with susceptibility decreasing as the young are raised (USFWS 1984). Disturbances such as harassment, vandalism, photographers, removing of birds/eggs, and certain land-use practices such as road construction, control burning, habitat alterations, etc. during critical reproduction periods all have potential severe disturbance.

The Recovery Plan (USFWS 1984) outlines General Protective Measures which include: 1) discouraging land-use practices and development which adversely alter or eliminate the character of the hunting habitat or prey base within ten miles and the immediate habitats within one mile of the nesting cliff, 2) restricting human activities and disturbances between February 1 and August 31 (in excess of those which have historically occurred at the sites) which occur within one mile of the nesting cliff, 3) discourage/eliminate the use of pesticides and other environmental pollutants which are harmful and would adversely affect the peregrine or its food source.

Spotted Bat (*Euderma maculatum*)

Spotted bats inhabit a variety of communities including open ponderosa pine, desert scrub, pinyon-juniper, open pastures, and hay fields. They roost in rock crevices, located high on steep rock faces in limestone or sandstone cliffs. Crevices range from 0.8 to 2.2 inches in width. Roost sites are usually in relatively remote and undisturbed areas. Availability of suitable roost sites and human disturbance are the limiting factors to this species' success (Spahr et al. 1991). Spotted bats are known to be rare and limited to relatively remote and undisturbed areas. Surveys conducted on several sites on the Fishlake National Forest in 1994 and 1996 resulted in no documented occurrences on the Fillmore Ranger District and Beaver Ranger District (Lengas 1994) with no bats of this species located. However, to date no forest wide surveys have been conducted and the species is only a suspected resident.

Spotted bats are strong fliers and have been observed to move up to 10 km from roosts or capture sites. Spotted bats forage primarily in flight on larger insects such as Lepidoptera but have also been seen foraging on the ground on grasshoppers (Toone 1992).

Spotted bats breed in late February to early April and give birth to one young in late May to early June. Spotted bats are territorial and avoid each other while foraging. There is some evidence that they exhibit roost site fidelity. Moths are thought to be their main prey species. Little is known about their seasonal movements, but they are thought to migrate south for winter hibernation (Spahr et al. 1991).

Spotted bats occur in scattered areas in British Columbia, Idaho, southeast Oregon, southwest Montana, western Wyoming, Nevada, Utah, western Colorado, southeastern California, Arizona, New Mexico, and south to the Mexican state of Queretaro (Spahr et al. 1991).

Human disturbance to hibernacula from cave exploration and bat banding has been found to cause significant declines of bat populations (Gillette and Kimbrough 1970, Mohr 1972, both cited in Christy and West 1993). Other threats to bats are establishment of dams that flood hibernacula (DeBlase et al. 1965, Griffin 1953, Hall 1962, all cited in Christy and West 1993), and the application of pesticides, which reduces food supplies and subjects them to contaminated prey (Clark 1981).

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

The Townsend's big-eared bat inhabits pinyon/juniper forests, shrub/steppe grasslands, deciduous forests, and mixed conifer forests located at elevations between sea level and 10,000 feet elevation. Caves, rocky outcrops, old buildings, and mine shafts provide suitable roost sites for this species. The low reproductive rate, limited availability of roost sites, and human disturbance are considered limiting factors for this species (Spahr et al. 1991).

Townsend's big-eared bats are insectivores, eating mostly moths. Breeding occurs at winter roost sites between October and February. Because fertilization occurs during winter months, females do not give birth until late spring or early summer. Each female usually gives birth to one offspring. Females and young roost in communal nurseries, which range in size from 12-200 individuals. The offspring fly at three weeks and are weaned in six to eight weeks. Nurseries break up by August. During the winter bats of this species roost singly or in small clusters in hibernacula from October to February. They do not migrate but occasionally move to different roosts or hibernacula presumably in response to temperature changes (Spahr et al. 1991).

The Townsend's big-eared bat occurs throughout North America, from British Columbia to southern Mexico, and east to South Dakota and western Texas and Oklahoma. Isolated populations exist in southern Missouri, northwestern Arkansas, and northeastern Oklahoma, and in eastern Kentucky, West Virginia, and western Virginia (Spahr et al. 1991). They are widely distributed throughout the Intermountain Region. Surveys were conducted at several sites on the Fishlake National Forest in 1994 and 1996 (Lengas 1994), with no bats of this species located. However, in 2003 a Townsend's big-eared bat was found roosting in an abandoned mine in Millard County, Fishlake National Forest. Possible day roosts, night roosts, hibernation roosts, and staging roosts for maternity colonies of this species were evaluated. Ten of 34 mine openings evaluated appeared to serve as roost sites for the Townsend's big-eared bat (Diamond and Diamond 2003).

Northern Goshawk (*Accipiter gentilis*)

Northern goshawks are associated with coniferous and mixed forest through much of the Northern hemisphere (Wattel 1981). Studies of nesting habitat show that goshawks nest in older-aged forests with variable tree species (Shuster 1980, Reynolds and Wight 1978, Saunders 1982, Moore and Henny 1983, and Hall 1984). The most consistent vegetative characteristic of goshawk nest sites is high percent canopy closure. Studies on habitat characteristics at goshawk nest sites have reported average canopy closure measurements ranging from 60 percent in eastern Oregon and 77 percent in northern California, to 94 percent in northwestern California (Reynolds and Wight 1978, Saunders 1982, and Hall 1984). Stand structure ranges from dense multi-layered stands in Oregon (Reynolds 1975, Reynolds and Wight 1978) to open park-like understories in Colorado and California (Shuster 1980, Saunders 1982, Hall 1984). Average tree size is just as variable with mean tree diameters ranging from 8-20 inches in Colorado (Shuster 1980), 20 inches in Oregon (Moore and Henny 1983), and 18 inches in northwestern California (Hall 1984).

Goshawks appear to prefer north to east aspects for nest sites, as stands on these aspects are typically denser and more suitable (Reynolds 1983, Reynolds and Wight 1982, Shuster 1980, Hall 1984). Slope also appears important as nests are usually placed on flat to moderately sloped land where trees are able to grow larger and at a higher density (1-39 percent) (Reynolds 1983, Shuster 1980, Hall 1984).

The importance of the proximity of the nest area to water is not known. Saunders (1982) and Moore and Henny (1983) found that the distances of water from nests averaged approximately 650 feet. Reynolds (1979) suggested that permanent water source is not required but there may be a preference for this condition.

Reynolds and Meslow (1984) found that the goshawk is a height zone generalist, taking prey from the ground-shrub, shrub-canopy, and layers. Fischer et al. (in prep.) found preference for woodlands with large, mature trees. Bloom et al. (1986) stress the importance of meadows, streams, and aspen stands, which may be important to prey species on which the goshawk feeds. However, Reynolds (1979) observed that goshawks forage in a variety of habitats probably along edge as well as in deep forests, provided that there is available prey and vegetation is not too dense to prevent flight. Prey plucking sites within the nesting territory is also a habitat characteristic related to foraging. Prey plucking sites usually consist of stumps, fallen logs, snags, arched trees, rocks, or horizontal tree limbs below the canopy (Bartelt 1974, Reynolds and Wight 1978). In Oregon and California studies, goshawks were found to forage primarily on birds and mammals (Reynolds and Wight 1978, Reynolds 1979, Bloom et al. 1986). In northern Arizona, Boal and Mannan (1991) found that Steller's jay, northern flicker, golden-mantled ground squirrel, and the least chipmunk were the primary prey species.

Available evidence suggests that two important resources, food and nest habitat, are the principle mechanisms limiting goshawk densities (Newton 1989, 1991, Village 1990). Specifically, populations may be limited by shortage of nest sites; and where nest sites are readily available, densities may be limited by food abundance and availability.

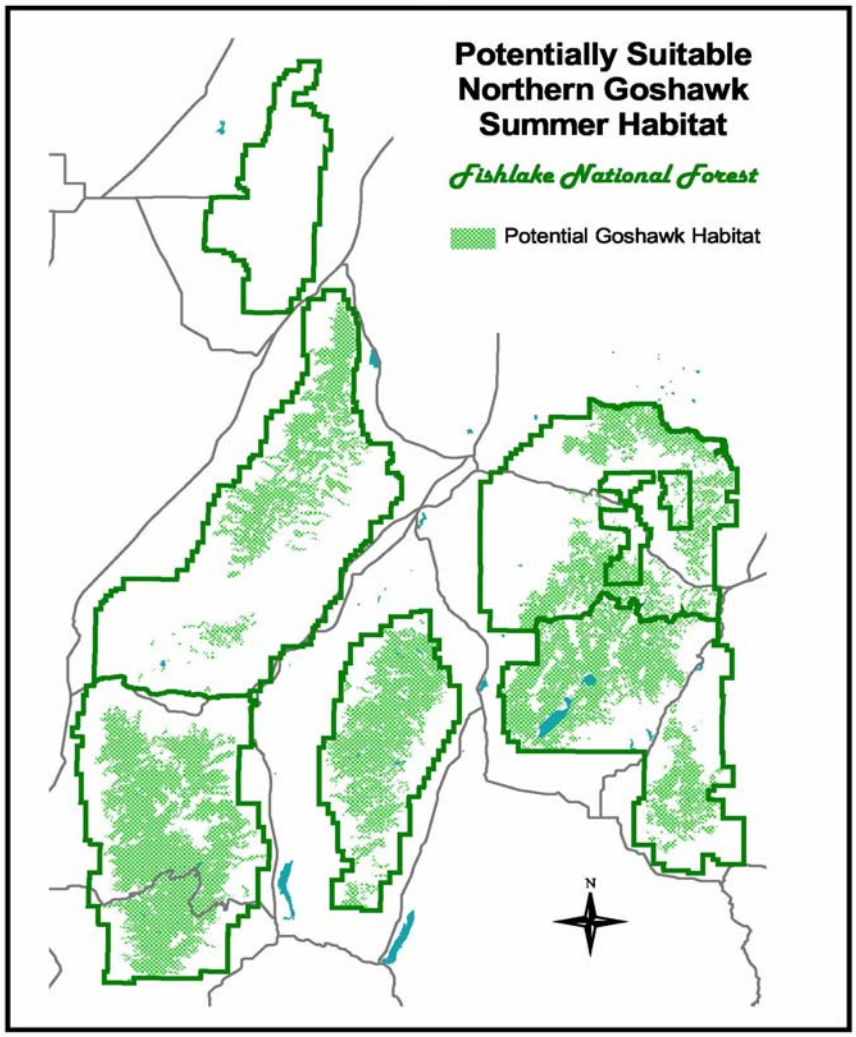
Goshawks begin breeding activities in April. Clutches of three to five eggs are laid in mid-June with the nestling period extending through mid-July. Nests are typically large stick platform structures built in a fork near the trunk of the tree, on a large branch, or on top of a mistletoe whorl, 30-40 feet from the ground in the lower two-thirds of the crown (Eng and Gullion 1962, McGowan 1975, Reynolds 1975, Bartelt 1974, Moore 1980, Hall 1984, McCarthy et al. 1989, Hennessy 1978, Shuster 1980, Reynolds and Wight 1978). Young are fledged between July 15-August 15 and may be dependent on adults for food until September 30. Goshawks typically build more than one nest in adjacent trees or as far as one

mile from the active nest tree. Goshawks may alternate between one or more of these alternate nests on an annual or semi-annual basis.

The Northern goshawk is Holarctic in distribution. In North America it occurs primarily in boreal forests, but it also occurs far to the south in montane forests of western United States and Mexico. The most widespread subspecies (A. g. atricapillus) occurs from the northeastern United States across the boreal forests of Canada to Alaska and southward through the upland forests of western United States. The goshawk is partly migratory in the northern portion of its range, where in winters of food shortage it migrates southward. In high elevations and montane areas, some goshawks descend to lower elevations into woodlands, riparian areas, and scrublands during the winter (Kennedy, unpubl. data). There is evidence that goshawks in the southwest winter in close proximity to their nesting home range (Kennedy unpubl. data).

Surveys have been conducted on all Ranger Districts across the forest following the Region 4 protocol. Twenty-eight have been documented on the Fishlake National Forest. This number can vary as a result of high winds and other natural events that can affect nests. Of the 28 nests, there are14 territories. Nesting activity ranges on average across the forest from 8-12 nests. An active nest is defined as; a nest where adults are present and incubating or where young are present in or at the nest.

Displayed below is a map of potentially suitable habitat across the Forest. There are approximately 423,432 acres of potentially suitable habitat on the Forest.



The Utah Northern Goshawk Conservation Strategy and Agreement are being implemented on the Fishlake National Forest. The Forest recognizes this document for its sound ecological base and is implementing these principals. Furthermore, the Forest recognizes this publication as the best science available on goshawk management in Utah. The Fishlake National Forest is also implementing the Utah Northern Goshawk Project Environmental Assessment 1999, which provides standards and guidelines for individual forest plan amendments.

Flammulated Owl (*Otus flammeolus*)

Flammulated owls appear to be associated with mature pine and mixed conifer habitat types (Reynolds and Linkhart 1984). Within Montana forests, they typically occur with the yellow pine belt, which includes ponderosa pine (*Pinus ponderosa*) and Jeffrey pine (*P. jeffreyi*) (Marshall 1957, Marcot and Hill 1980). Flammulated owls have also been found in stands of fir (*Abies* spp.), Douglas fir (*Pseudotsuga menziesii*) and incense cedar (*Libocedrus decurrensen*) (Marshall 1939, Reynolds and Linkhart 1984). Undergrowth of oak/pine mix may be a required habitat component in some portions of its range (Phillips et al. 1964).

Radio-telemetry studies of foraging and habitat use by flammulated owls in Colorado (Linkhart 1984, Reynolds and Linkhart 1987) showed the owl's preference to forage in old-growth (>200 years old) ponderosa pine-Douglas fir stands over other forest types and ages available within the study area. Goggans (1986) found that flammulated owls monitored in Oregon foraged in edge habitat between forests and grasslands significantly more than these types occurred within their home range and that the relative proportions of arthropods (flammulated owls' main prey species), were greatest in grassland habitat.

Flammulated owls are obligate secondary cavity nesters and rely on previously excavated cavities in large diseased or dead trees for nest habitat (Bull and Anderson 1978, Reynolds et al. 1985). Possible limitations to this species include the loss of suitable habitat by logging of mature forest stands and availability of snags for nesting.

Flammulated owls are almost exclusively insectivorous, preying on small to medium-sized moths, beetles, caterpillars, crickets, spiders, scorpions, and other arachnids. Breeding begins in May when pair formation and nest site selection take place. Flammulated owls are obligate secondary cavity nesters. Clutches of two to three eggs are laid in natural or flicker-sized woodpecker holes in early June. Young are hatched after a 21-22 day incubation period and fledged in late July. They disperse from the natal area by September. In mid-October, flammulated owls migrate to wintering grounds in Mexico and Central America (Spahr et al. 1991).

Flammulated owls are distributed from southern British Columbia south to Veracruz, Mexico and from the Rocky Mountains to the Pacific during breeding. In winter their range is thought to extend from central Mexico to Guatemala and El Salvador (Spahr et al. 1991).

No inventory specific to the flammulated owl has been conducted on the Fishlake National Forest. A Mexican spotted owl inventory conducted in 1992 did record flammulated owl vocalizations on the Loa Ranger District of the Forest. To date no nests have been documented on the Fishlake National Forest.

Three-toed Woodpecker (*Picoides tridactylus*)

Three-toed woodpeckers are found in northern coniferous and mixed forest types located at elevations up to 9000 feet and composed of Engelmann spruce, sub-alpine fir, Douglas fir, grand fir, ponderosa pine, tamarack and lodgepole pine (Gabrielson and Jewett 1940, Farner 1952, Larrison and Sonnenberg 1968, Marshall 1969). This species is attracted to areas where there are numerous dead trees due to a fire, insect epidemic, blow-down, or other die-off (Bent 1939, Spring 1965, Larrison and Sonnenberg 1968).

Nests are found in cavities located 5-12 feet above ground in dead spruce, tamarack, pine, cedar, and aspen trees. This species uses a variety of tree species as foraging substrata; fire-killed trees appear to be preferred. In Colorado, this woodpecker was found to prefer old growth and mature trees for foraging; in Oregon they have been observed foraging on lodgepole pine trees with an average DBH of 9.4 inches and height of 59 feet. Because this species requires snags for feeding, perching, nesting, and roosting, it is threatened by activities such as logging and fire suppression, which remove or eliminate snags (Spahr et al. 1991).

This species feeds on wood-boring insect larvae, mostly beetles, but they also eat moth larvae and occasionally sap at sapsucker pits. They are major predators of the spruce bark beetle and may contribute to its control. Three-toed woodpeckers breed in May and June. Both sexes excavate the nest cavity in a dead or occasionally live tree where they incubate an average of four eggs for 12-14 days. Young fledge at 22-26 days and remain with the parents for another month (Spahr et al. 1991).

Three-toed woodpeckers range across North America from tree line south to southern Oregon and through Idaho and Utah to New Mexico and Arizona. In eastern North America they are found south to Minnesota, southern Ontario, New York, and northern New England. They also occur across northern Europe and Asia (Spahr et al. 1991). In the Intermountain Region, densities are presumed to be low; however, little information is available.

Formal forest-wide inventories for this species have been conducted on the Richfield, Loa and Beaver Ranger Districts. As a result of these inventories numerous nests were located on Monroe Mountain. Monitoring nest success as well as the successfulness of mitigation measures was part of a study conducted by Brigham Young University. In the Engelmann spruce habitat type of Monroe Mountain 71 of 251 survey points showed occurrences of three-toed woodpeckers (Hill et al. 2002). Monitoring data resulted in improved mitigation measure recommendations for snag retention.

Greater Sage Grouse (*Centrocercus urophasianus*)

There are two sub-species of the greater sage grouse: the eastern sage grouse (*Centrocercus urophasianus* ssp. *urophasianus)*, and the western sage grouse (*Centrocercus urophasianus* ssp. *phaios* Aldrich). Greater sage grouse are distributed from north-central Oregon, southern Idaho, and southern Alberta and Saskatchewan south to eastern California and extreme western North and South Dakota. Isolated populations also occur in eastern Washington (Johnsgard 1983, Wallestad 1975).

Sage grouse are solely dependent on sagebrush-dominated habitats (Benson et al. 1991). Sagebrush is an essential part of sage-grouse brood habitat, nesting cover, and year-round diet (Call 1979). Open areas such as swales, irrigated fields, meadows, burns, roadsides, and areas with low, sparse sagebrush cover are used as leks (Klebenow 1973). Leks are usually surrounded by areas with 20 to 50% sagebrush cover, with sagebrush no more than 1 foot (30.5 cm) tall.

Males gather on the lek or strutting grounds in late February to April, as soon as the lek is relatively free of snow. Only a few dominant males, usually 2, breed. Within a week to 10 days following breeding, the hen builds a nest in the vicinity of the lek (Autenrieth 1985). Clutch size ranges from 6 to 8 eggs; incubation time is 25 to 27 days. Chicks fly by 2 weeks of age, although their movements are limited until they are 2 to 3 weeks old (Wallestad 1975). They can sustain flight by 5 to 6 weeks of age. Juveniles are relatively independent by the time they have completed their first molt at 10 to 12 weeks of age (Johnsgard 1983).

Sage grouse lack a muscular gizzard and cannot grind and digest seeds; they must consume soft-tissue foods (Wallestad 1975). Sage grouse eat sagebrush throughout the year. Apart from sagebrush, the adult sage grouse diet consists largely of herbaceous leaves, which are utilized primarily in late spring and summer (Edminster 1947). Additionally, sage grouse use perennial bunchgrasses for food (Barnett and Crawford 1994). They are highly selective grazers, choosing only a few plant genera. Insects are a minor diet item for adult sage grouse. In a Utah study, Welch, Wagstaff and Robertson (1991) found that sage grouse, while expressing preference for big sagebrush, are capable of shifting their eating habits.

In their 1st week of life, sage grouse chicks consume primarily insects, especially beetles from the family Scarabeidae (Klebenow and Gray 1968). Their diet then switches to forbs, with sagebrush gradually assuming primary importance.

Sage grouse apparently do not require open water for day-to-day survival if succulent vegetation is available, however, they utilize free water if it is available. Sage grouse distribution is apparently seasonally limited by water in some areas. In summer, sage grouse in desert regions occur only near streams, springs, and water holes.

Sveum and others (1998) in Washington suggest that nest success is related to herbaceous cover near the nest site. Lack of adequate nesting and brooding cover may account for high juvenile losses in many regions (Kindschy 1986). Taller, denser herbaceous cover apparently reduces nest predation and likely increases early brood survival (Braun 1998). Tall, dense vegetation may provide visual, scent, and physical barriers between predators and nests of ground-nesting birds. Generally, quantity and quality of habitats used by sage grouse control the degree of predation. Thus, predation would be expected to be most important as habitat size and herbaceous cover within sagebrush decreases (Braun 1998). Predator species include Coyote (*Canis latrans*) (Kindschy 1986), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), falcons (Falconidae), and hawks, kites, and eagles (Accipitridae) (Dunkle 1977) prey on adult and juvenile sage grouse. Crows consume juvenile birds (Kindschy 1986). Coyote, ground squirrels (*Spermophilus* spp.), and badger are the most important mammalian nest predators.

Sage grouse are habitat-specific to one particular plant type in meeting their life requirements. Destruction of habitat has been the basic cause of sage grouse decrease throughout the West (Call 1979). Sage grouse once occurred virtually everywhere there was sagebrush. Sage grouse have declined primarily because of loss of habitat due to overgrazing, elimination of sagebrush, and land development (Hamerstrom and Hamerstrom 1961).

There are known populations of sage grouse on the Richfield and Loa Ranger Districts. Sage grouse have been documented on the south end of Monroe Mountain near the Hell's Hole and Forshea Mountain areas. Sage grouse have been documented using these areas in spring through winter with one documented lek. Sage grouse have also been documented on the lower Mytoge Mountain near the Forest boundary and also near Forsyth Reservoir near Highway 72. They have been documented during the summer months on the upper Mytoge, Sevenmile, and the Tidwell Slopes. Because little information exists on the Fishlake National Forest, a determination concerning trend is difficult. However, low population numbers have been documented throughout the west, therefore it is assumed that Forest populations are in similar condition. Ongoing surveys will continue in cooperation with the Utah Division of Wildlife Resources.

Pygmy Rabbit *(Brachylagus idahoensis)*

Pygmy rabbits are generally limited to areas on deep soils with tall, dense sagebrush, which they use for cover and food (Flath 1994, Green et al. 1980b). Individual sagebrush plants in areas inhabited by pygmy rabbits are often 6 feet (1.8 m) or more in height (Flath 1994). Extensive, well-used runways interlace the sage thickets and provide travel and escape routes (Green et al. 1980b). Dense stands of big sagebrush along streams, roads, and fencerows provide dispersal corridors for pygmy rabbits (Weiss and Verts 1984). Pygmy rabbits are seldom found in areas of sparse vegetative cover and seem to be reluctant to cross open space (Bradfield 1975).

The pygmy rabbit is the only native leporid that digs burrows. Juveniles use burrows more than other age groups. When pygmy rabbits can utilize sagebrush cover, burrow use is decreased. Burrows are usually located on slopes at the base of sagebrush plants, and face north to east. Tunnels widen below the surface, forming chambers, and extend to a maximum depth of about 3.3 feet (1 m). In areas where soil is shallow pygmy rabbits live in holes among volcanic rocks, in stone walls, around abandoned buildings, and in burrows made by badgers (Taxidea taxus) and marmots (Marmota flaviventris) (Bradfield 1975, Green et al. 1980b).

Pygmy rabbits may be active at any time of day; however, they are generally most active at dusk and dawn. They usually rest near or inside their burrows during midday (Green et al. 1980b). Some researchers have found that pygmy rabbits never venture further than 60 feet (21.3 m) from their burrows (Bradfield 1975). However, Bradfield (1975) observed pygmy rabbits range up to 328 feet (100 m) from their burrows.

Some areas inhabited by pygmy rabbits are covered with several feet of snow for up to 2 or more months during the winter. During periods when the snow has covered most of the sagebrush, pygmy rabbits tunnel beneath the snow to find food. Snow tunnels are approximately the same height and width as underground burrows. Aboveground movement during the winter months is restricted to these tunnel systems (Bradfield 1975).

The range of the pygmy rabbit includes most of the Great Basin and some of the adjacent intermountain areas of the western United States (Green et al. 1980b). Pygmy rabbits are found in southwestern Montana from the extreme southwest corner near the Idaho border north to Dillon and Bannack in Beaverhead County (Flath 1994). Distribution continues east to southern Idaho and southern Oregon and south to northern Utah, northern Nevada, and eastern California. Isolated populations occur in east-central Washington (Bradfield 1975) and Wyoming (Campbell et al. 1982).

The elevational range of pygmy rabbits in Nevada extends from 4,494 to over 7,004 feet (1,370-2,135 m) and in California from 4,986 to 5,298 feet (1,520-1,615 m) (Green et al. 1980b), and in Utah they have been located up to 8,400 feet.

The primary food of pygmy rabbits is big sagebrush, which may comprise up to 99% of the food eaten in the winter. Grasses and forbs are also eaten from mid- to late summer (Bradfield 1975, Green et al. 1980a, Green et al. 1980b).

Pygmy rabbits are capable of breeding when they are about 1 year old (Green et al. 1980b). The gestation period is unknown; however, it is between 27 and 30 days in various species of cottontails (Sylvilagus spp.). An average of six young are born per litter and a maximum of three litters are produced per year (Green et al. 1980b). The growth rates of juveniles are dependent on the date of birth. Young from early litters grow larger due to a longer developmental period prior to their first winter (Green et al. 1980b). The mortality of adults is highest in late winter and early spring.

Weasels (Mustela spp.) are the principal predators of pygmy rabbits. Coyote (Canis latrans), red fox (Vulpes vulpes), badger, bobcat (Felis rufus), great horned owl (Bubo virginianus) and marsh hawk (Circus cyaneus) also prey on pygmy rabbits (Bradfield 1975, Green et al. 1980b).

Some populations of pygmy rabbits are susceptible to rapid declines and possibly local extirpation. Some studies suggest that pygmy rabbits are a "high inertia" species with low capacity for rapid increase in density (Weiss and Verts 1984). The loss of habitat is probably the most significant factor contributing to pygmy rabbit population declines. Protection of sagebrush, particularly on floodplains and where high water tables allow growth of tall, dense stands, is vital to the survival of pygmy rabbits (Flath 1994). Fragmentation of sagebrush communities also poses a threat to populations of pygmy rabbits (Weiss and Verts 1984) because dispersal potential is limited (Tesky 1994).

There are only two known locations documented on the Fishlake National Forest. One location has been identified on the Loa Ranger District and the second location on the Richfield Ranger District.

Because surveys for this species are new and ongoing, a determination of the health and distribution is difficult; therefore, a determination regarding trend and viability of pygmy rabbits cannot be made at this time. However, detections of this species have been made in areas where historic habitat has not been identified. In addition, the elevational range has been increased beyond what was originally thought to be suitable pygmy rabbit habitat. Surveys will be continued to determine range, distribution, and health of this species.

Below is a map of pygmy rabbit detections in Utah in 2003 (Natural Heritage Program data, 2003).